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Rhodora

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MERRITT LYNDON FERNALD, Editor-in-Chief

JAMES FRANKLIN COLLINS
CHARLES ALFRED WEATHERBY } Associate Editors
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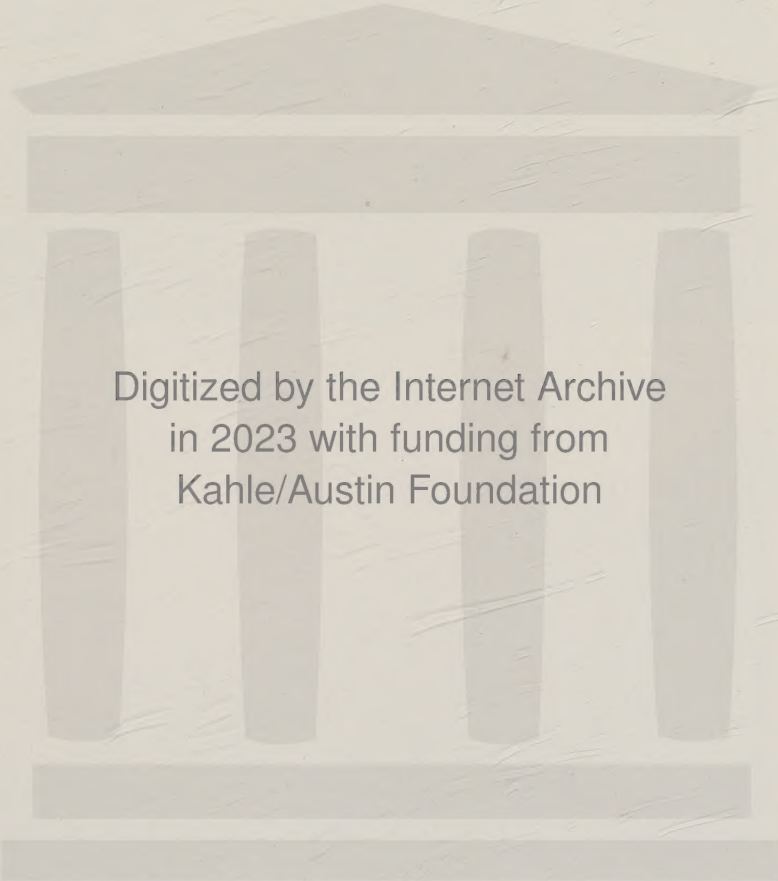
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UP THE HUMBER FROM HANNAH'S HEAD (upper);
MARBLE MT. at right. MT. MUSGRAVE in background.
HORIZONTAL LIMESTONES, OLD PORT AU CHOIX (lower).

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ANNOTATIONS ON HERBARIUM SHEETS

H. A. GLEASON

It is now generally recognized that a species is an abstract mental concept, synthesized from the structural characters of various individual plants. To this concept is given a binomial name. The same binomial, when written on a herbarium sheet, does not indicate the name of the individual plant there displayed, but the concept under which the individual is placed. The assignment of the individual to a certain concept constitutes identification.

The original synthesis of a specific concept dates back to the first description of the species, while the name under which this concept is known can not be earlier than 1753. In the casual identification of plants, botanists accept without question the concept of earlier students, learning it from printed descriptions or from comparison with specimens bearing the appropriate name. In monographic study botanists form concepts of their own. If these concepts coincide with earlier ones, in the opinion of the student, the original idea is continued; if not, new species or subspecies are proposed or two or more concepts united under a single name. All botanists know how specific concepts vary, partly through accumulation of material for study and partly through mere change in mental attitude.

The name which appears on a herbarium sheet represents the opinion of some person. It may have been placed there by a skilled botanist who has given years to the study of this particular group, or by one who has given the plant only the most casual or perfunctory

examination. It is obvious that a grass, collected by a high school student and labeled *Panicum praecocius*, is of far less value in illustrating that specific concept than if it were so identified by Hitchcock and Chase, who described the species originally. The high school boy may be right, and Hitchcock and Chase may conceivably be wrong, but we feel far more confident of the accuracy of identification in the latter case than in the former. Furthermore, an identification by Hitchcock during his first years as a botanist is obviously less reliable than one made at the present time.

In general, the probability that a specimen is correctly identified, that is, that it correctly illustrates a certain specific concept, depends largely on the person making the identification and on the date when it was made. Each person identifying a plant in our reference herbaria should therefore add or have added to the label his name and the date, for example, *det. John Smith, 1932*. If John Smith is a botanist of recognized ability in 1932, his identification will have authority accordingly; if in 1972 he is the leading taxonomist of the world, his identification of 1932 will nevertheless carry relatively little weight.

All large herbaria include numerous sheets on which identifications have been written by persons of authority who can not now be known except through a knowledge of their handwriting. During the course of our own studies we learn to recognize some of these, but we shall make it much easier for those who follow us if we will add to these old annotations such statements as *written by Asa Gray*, or *Martius scripsit*, as I have seen in European herbaria.

The method by which an identification is made is also valuable information. We all realize the difficulty of using printed descriptions only, and we often add to specimens so identified the abbreviation *ex char.* This should always be done. If we assign the name as a result of comparison with other specimens, we should indicate that, and if practicable cite the particular specimens with which comparison was made, since the source material may be incorrectly named. Such a legend as = *type in Herb. Kew.* gives immediate authority to the name, tempered only by the possible question of our ability to make an exact comparison.

While the name on the label may have been written originally by a person without experience or detailed knowledge, it may be correct. Later students of the group, who are able to speak with authority,

recognize the name as correct and pass it without comment. The value of the identification is immediately raised if such persons add their own annotation to that effect, as *confirmed by Gray, 1882*, or *accepted by Bentham, 1867*. I know of specimens in the family Melastomataceae which have certainly been examined successively by Naudin, Triana, and Cogniaux. It would certainly add much to the value of the specimen if each of these masters of the family had indicated his approval of the name.

Most monographs and some floras cite by collector and number the specimens upon which their descriptions are based. Duplicates of these numbers should always mention this citation, as *Cited by Niedenzu, Pflanzenreich* 4¹⁴¹: 493. At the New York Botanical Garden, where many old Brazilian specimens are deposited, sheets are stamped with indelible ink *This number is cited under this name in Flora Brasiliensis*, or, where the original name has been changed, *This number is cited in Flora Brasiliensis as* ———. And of course types, isotypes, cotypes, and topotypes should always be designated, even if the species which they represent are no longer valid.

When dissections are made by a student from herbarium material, and detailed notes and drawing made from them, copies of both should be attached to the sheet whenever possible. In the great majority of cases this will obviate any necessity of further dissection in the future and will help greatly toward keeping the specimen in good condition. Some types in older European herbaria have been nearly destroyed by the inroads of monographers, without any record of their findings being left for the benefit of their successors.

In making annotations, the original label should never be rewritten, obscured, or destroyed. It may have considerable historical value. In my opinion, it makes relatively little difference whether the notes are written on the sheet itself, or on an annotation label which is pinned or pasted to the sheet. Many herbaria have regulations in this respect which can easily be followed.

Most herbaria are generous in lending material to students, notwithstanding the risk of loss or damage in shipment. If we profit by the examination of borrowed material, we should at least try to improve the material by returning it fully annotated.

NEW YORK BOTANICAL GARDEN.

NEW SPECIES AND FORMS FROM THE CENTRAL AND
SOUTHERN UNITED STATES

H. C. BENKE

DURING late winter and through the spring of 1930, another great-circle tour southward was undertaken by the author. This trip began in the latter part of February and was completed by the beginning of June.

Leaving Chicago, a southeasterly direction was taken over the Ohio River valley, the Allegheny foot-hills and thence through Alabama, striking the Gulf of Mexico near the Florida line; thence zigzagging coast-wise west and southwest all the way to the border of Mexico about Brownsville, Texas, coming scarcely 100 km. inland at any point. The return trip was made over the edge of the Great Plains, through the Ozark region and crossing the Mississippi River at Quincy, Illinois. Numerous exploratory side-trips were made, so completing some 5,000 km. of travel, by making use of a great variety of transportation.

Specimens and, in most cases, duplicates with notes were taken of such plants as indicated extension of range, flowering season or other unusual data, or promised new taxonomic material, some of which is being studied by other workers, mostly specialists; but my own work with a portion of the collection has yielded some novelties which are now available for publication.

I. The *Eustoma* noted about the mouth of the Rio Grande at the time of the visit was of the smaller-flowered species—*E. exaltatum*—brightening the landscape in purple, but very locally. One small colony was seen in which the corollas were pure white. This may be separated as:

EUSTOMA EXALTATUM (L.) Griseb., forma **albiflorum**, f. nov., corolla alba, siccato ochroleuca.—TEXAS: Brownsville, Cameron County, March 25, 1930. *H. C. Benke* 5409 (TYPE, Field Museum).

With the species; corolla white, turning cream-color on drying.

II. *Verbena officinalis*, like many other species which are adventitious from the old world, occurs only locally, but in large and well-established colonies, for it is one which takes kindly to its new environment. It was seen at points in Texas with its very small corolla in purple hue rather different from descriptions in European Floras as white, pale lilac or lilac in color.

At Kingsville was noted a very considerable colony of this species,

with beautiful rose-purple corollas, differing strikingly from the others, and from descriptions alluded to. No plants with white corollas came under observation. The new color-form:

VERBENA OFFICINALIS L., forma **roseiflora**, f. nov., corolla intense rosea.—TEXAS: Kingsville, Kleberg County, March 28, 1930. *H. C. Benke* 5418 (TYPE, Field Museum).

Corolla deep rose-color, otherwise like the species.

III. In the case of *Stachys agraria*, which is rather common in coastal Texas, the albino form is rare—only a few plants having been seen and these in but one locality near Corpus Christi. The species usually had corollas of an attractive purple-blue, with the coloration extended to the calyx-teeth. The unusual form:

STACHYS AGRARIA Cham. & Schlecht., forma **albiflora**, f. nov., corolla alba; calicis dentibus viridibus.—TEXAS: Corpus Christi, Nueces County, March 31, 1930. *H. C. Benke* 5420 (TYPE, Field Museum).

With the species; corolla pure white; calyx-teeth green.

IV. For some time past, the Colby brothers have been mentioning some "beautiful pink Blood-root" as occurring in the woodlands about Crystal Lake, Illinois, but it was not until this spring, 1932, that some specimens were sent me by Mr. Earl H. Colby of Crystal Lake. The brothers are all friends of nature, and especially of the wild flowers—one of them, Mr. Carl Colby of Pittsville, Wisconsin, has on various occasions sent in rare and interesting specimens which may be seen in Field Museum and other Herbaria. It is deemed very appropriate to name this rare plant for the brothers:

SANGUINARIA CANADENSIS L., forma **Colbyorum**, f. nov., petala laete rosea.—ILLINOIS: Crystal Lake, McHenry County, May 1, 1932. *Earl H. Colby* Mus. No. 652805 (TYPE, Field Museum).

With the species; petals bright pink.

In the fall of 1931, my trip through the Illinois Ozarks in the far southern portion of the state was rewarded in uncovering some new plants, two of which are ready for recording as below:

V. *Zizia sylvatica*, sp. nov., planta *Z. cordatae* similis sed gracilior altiorque; foliis radicalibus cordatis, caulinarum uno vel pluribus quoque cordatis, nullo modo lobatis; foliis superioribus 2-3 ternatim decompositis vel lobatis.—ILLINOIS: Tunnel Hill, Johnson County, Sept. 5, 1931. *H. C. Benke* 5252 (TYPE, Field Museum).

Aspect of *Z. cordata*, but more slender and tall; basal leaves cordate, and in addition one or more cauline leaves also cordate, long-petioled and not at all lobed; uppermost leaves 2 to 3-ternately compound or variously lobed.

Plants were seen in considerable numbers in a region which is wild and primitive, but all in the deep shaded woods, hence the name.

The type specimen has 6 to 8 rays in the umbels; lower two cauline leaves ovate-cordate, undivided, the first or lower 5 cm. wide x 6 cm. long, 12 cm. up the stem, the second 4 x 6 cm., about 14 cm. farther up (at $\frac{3}{4}$ distance up the entire plant); petiole of lower cauline cordate leaf 10 cm. long, of upper 3 cm. long; uppermost leaves as described above.

There is one other specimen of this species in Field Museum Herbarium and it also is from Illinois. It was recorded as *Z. cordata* (Walt.) DC. ILLINOIS: Beverly Hills, L. Chicago Basin, Cook County, June 24, 1920. Donald C. Peattie 457. One long-petioled, cordate leaf occurs on the stem, 18 cm. above the base—about half-way up.¹

The position of this species among others of the genus *Zizia* is seen in the following key:

- a. Leaves all 2-3 (5)-ternately compound or lobed. b.
- b. Umbel of many (averaging about 18) stout rays; plant of fields and meadows, mostly. *Z. aurea* (L.) Koch.
- b. Umbel of few (av. about 8) weak rays; plant of woodlands, mostly. *Z. Bebbii* (Coul. & Rose) Britton.
- a. Some of the leaves cordate, undivided, long-petioled. c.
- c. Cauline leaves all divided; rays of umbel rather as in *Z. aurea*; plants mostly of open ground. *Z. cordata* (Walt.) DC.
- c. One or more cauline leaves undivided; other leaves and umbel rather as in *Z. Bebbii*; plants of shaded woods. *Z. sylvatica*.

VI. Among the hills of southern Illinois, particularly in the swamps and valleys below, there occur patches of beautiful caerulean blue of the *Eupatorium coelestinum* in its season, reminding one very much of that garden favorite, *Ageratum*. In several places this was varied by the same species in most charming and impressive red-purple, hence:

EUPATORIUM COELESTINUM L., forma **illinoense**, f. nov., formae typicae similis, floribus pulchre rubro-purpureis differt.—ILLINOIS: Creal Springs, Williamson County, Sept. 6, 1931. H. C. Benke 5272 (TYPE, Field Museum).

Like the species, but with the flowers of a rich red-purple color.

Some miles away, but in the same county, a colony of the same form had been seen, a specimen is also in Field Museum Herbarium, ILLINOIS: Marion, Williamson County, Sept. 3, 1931. Benke No. 5271.

I have seen the species in neighboring states, but not in this novel form (though it may be expected to occur), hence the name.

CHICAGO, ILLINOIS.

¹ This specimen bears the notation on the label "shaded ditch," which would further seem to confirm the habitat of this species.

RECENT DISCOVERIES IN THE NEWFOUNDLAND FLORA

M. L. FERNALD

(Continued from page 16)

But when we got above the timber, on the exposed limestone slope, the most amazing sight of all greeted us, solid carpets covering acres of slope, like a lawn, with three dominant plants: *Botrychium Lunaria* by thousands, growing 20 to 30 to a turf 2 decimeters across, the plants 1.5–2.5 dm. high, with sterile fronds up to 1 dm. long, so abundant that it was impossible to step without crushing the fronds; *Anemone multifida*, a local plant in Newfoundland or anywhere else, the larger clumps with 10 to 60 peduncles bearing rosy-pink flowers or whitish cottony heads of fruit; and *Festuca brachyphylla* Schult., frequent enough in western Newfoundland but not often in such abundance. Of course there were other things, the usual calciphiles of western Newfoundland: *Asplenium viride* Huds. (unless we are to take up for it the earlier *A. Trichomanes-ramosum* L.¹), *Woodsia glabella*, *Cryptogramma Stelleri* forming turf, *Thelypteris Robertiana* (Hoffm.) Slosson, *Polystichum Lonchitis*, *Anemone parviflora*, *Are-*

¹ This species has been universally known as *Asplenium viride* Hudson (1762). Nevertheless, the plant had an earlier and properly published name in *A. Trichomanes-ramosum* L. Sp. Pl. ii. 1082 (1753). The Linnean species drew its compound specific epithet from *Trichomanes ramosum* of Bauhin and of Ray and it was treated by Linnaeus as a species, *A. Trichomanes-ramosum*, in all three editions of *Species Plantarum*, a species wholly apart from *A. Trichomanes* L. (1753). When Hudson published *A. viride* (as *A. viridi*) he, likewise, cited as synonyms *Trichomanes ramosum* of Bauhin and of Ray. The Linnean name was promptly thrown aside in favor of Hudson's *A. viride*, apparently because the name given by Linnaeus might suggest to the uninformed that a forking state or perhaps a hybrid of *A. Trichomanes* L. was intended; and the name *A. Trichomanes-ramosum* even disappeared from the synonymy. Christensen, however, in *Index Filicum*, correctly cites it as a synonym of *A. viride* and suggests that it is the best name; but he refrains from following priority in this case and retains the later and more familiar name, saying

viride Huds. Fl. Angl. 385. 1762.

A. Trichomanes ramosum L. Sp. 2. 1083. 1753 (prob. nom. opt.).

At the same time (1753) Linnaeus had two other species with compound trivial names, *Asplenium Adiantum-nigrum* and *A. Ruta-muraria*. Lamarck tried to improve upon the former by renaming it *A. nigrum* (1778) and on the latter by calling it *A. murorum* (1778). Yet all botanists reject *A. nigrum* and retain the compound *A. Adiantum-nigrum*; and it would be almost sacrilege to call the Wall Rue anything but *A. Ruta-muraria*. The present rules of nomenclature do not allow us to discriminate against the name *A. Trichomanes-ramosum*, unless it is "a permanent source of confusion or error." Decision of the latter point is not always simple nor unanimous; to the uninformed the name *A. Trichomanes-ramosum* might be a source of confusion; to the thoroughly informed not. Similarly with *Juncus alpino-articulatus* Chaix. (1786) for the plant generally called *J. alpinus* Vill. (1787), the name *J. alpino-articulatus* might easily be a source of confusion, as suggesting some entanglement with the earlier *J. articulatus* L. (1753). Absolute clarity favors the retention of *Asplenium viride* and of *Juncus alpinus*. See note under *Juncus alpinus* in Part III.

naria dawsoneensis Britton, etc. *Orobanche terrae-novae* Fern.,¹ in young flower, was superabundant; *Draba arabisans*, in a characteristic form with crowded fruits, was everywhere; and in the dry humus at the summit were two *Antennarias* with fuscous or brown involucres, wholly different from one another and both needing names (PLATES 265 and 268).

Evening was approaching and it was necessary to go down to the waiting motor boat; and we had only just begun the exploration of Hannah's Head. From the inner edge of the area we were on we looked up river to a continuation (PLATE 234) of the mountain falling as a sheer wall of white limestone to the Humber and at its base having a splendid talus. There, of course, are other species; but darkness was coming on and we were forced to quit. The big cliff and talus, easily accessible, still await exploration; and to the north, back of Hugh's Brook, we could see still another white wall, not yet reached by a botanist. Still further, Howley's geological map shows this band of limestones on the western border of the Long Range to extend for more than a hundred miles northward, cut into at their eastern ends by the antler-like arms of the bays and inlets—all unexplored! Hannah's Head, coincident with its change of name to Mt. Patricia, verily stands out as a princess among Newfoundland headlands.

In 1898, the late Rev. Arthur C. Waghorne, most active of resident botanical explorers, collected in woods at McIver's Cove, near the northern entrance to Humber Arm, an extraordinary willow. The fragmentary specimen in the Gray Herbarium has proved baffling to everyone who has tried to place it with any recognized species. It has been unsatisfactorily placed with *Salix phylicifolia*, *S. Barclayi* Anderss., *S. Barclayi* subsp. *latiuscula* Anderss. and *S. discolor*, but it differs from all of them in some very important characters (to be discussed in Part III). We were anxious to rediscover it and to secure abundant material; but on the day set a strong wind came up and it was necessary to wait until the calm of late afternoon. When we got to McIver's Cove we found that the older people well remembered Waghorne and his visit there; but no one in the village had ever seen or heard of a *wild* willow. They had plenty of *S. viminalis* planted, but they were so thrilled at the idea of a willow being really *native* in their cove that a good proportion of the population joined

¹ RHODORA, xxviii. 235 (1927).

in the search. In three or more parties we scoured the region until darkness (about 10:30) cut the search short; but when we left we agreed with the statement given us on first landing, that at present no native willow grows at McIver's Cove.

Mr. James Pennell, whose extensive grounds at Curling contain many interesting garden plants, showed us a handsome shrub which he and his father had transplanted from a thicket at Hugh's Brook. The shrub is *Crataegus laurentiana* Sargent; and, since any native *Crataegus* is rare in Newfoundland, we were glad to see it. Heretofore our only stations for the species had been on the banks of the Exploits.

Mr. S. Wheeler, a merchant at Curling, who had had much experience as a mine-pro prospector in the West and who intimately knows the mountains and the different rock-outcrops about the Bay of Islands, wanted us to see the Middle Arm. We and others before us had seen much of the Humber Arm, and Long and Fogg had seen the dreary serpentine wall of the North Arm, but we had never visited the Middle Arm. In imitation of the charity-supported but rapidly breeding "fishermen" we had once encountered farther north, who, content with their dole, argued "There are no fish, so what's the use of going out?", we should have repudiated the proposition a day or two earlier. But in the meantime we had been introduced to Hannah's Head, and nothing but the now undesired arrival of the "Sagona" would keep us from making the trip.

Mr. Wheeler was obliged to close his store for the day; the trip from Curling to Middle Arm Point, thence in to the head of Goose Arm or of Penguin Arm and back to Curling, would take much of the day (more than fifty miles, all told). He, therefore, invited us to breakfast with him in the early morning and to allow him to take coffee pot, frying pan and food for the trip; and on July 16, with Mr. Wheeler as experienced guide, wise philosopher and genial friend, we went for an 18-hour trip to the Middle Arm. It was after midnight when we got back; our three large collecting boxes were quite inadequate for the specimens; and we had given a small portion of the Middle Arm only the most hasty "once over." Whereas Humber Arm has many villages and from Petrie's Point to Humbermouth is cleared and denuded by man and fire, the Middle Arm is not only almost uninhabited but is bordered on all sides by high unspoiled cliffs of fantastically twisted limestones and calcareous slates. The moment

we rounded Middle Arm Point we were anxious to land, but our wiser counsellor calmly replied: "We haven't got anywhere yet."

At Cutwater Head, however, he drew in under the steep talus. Scrambling ashore, we started up the loose slaty debris only to come sliding back to the starting point. One turfy and bushy island on the talus was finally reached and there we anchored by means of our botanizing picks, reassembled our lost breaths and looked about: the usual masses of *Hedysarum alpinum* L. with its ornamental pink racemes; silvery-bronze masses of glistening *Shepherdia canadensis*, everywhere common in western Newfoundland but always puzzling us in the distance by its varied lustre; *Salix vestita* Pursh, as lovely a willow as grows, with satiny-white under surfaces and dark green



Map 3. Range of *OXYTROPIS FOLIOLOSA*.

upper surfaces of the rounded leaves, the large terminal buds red or purple; the regular Saxifrages of such places; *Artemisia canadensis*, scarcely in flower and delicately fringe-like; and numberless other calciphiles of which we never tire. With time only for the briefest of collecting, we brought our eyes to our insular anchorage: *Oxytropis foliolosa* Hooker (MAP 3), the rare Rocky Mountain species with 1-sided racemes of royal-purple flowers, heretofore known in eastern America only from shores of Hudson Strait and of the Straits of Belle Isle; *Astragalus eucosmus*, at our first station in western Newfoundland from south of Pistolet Bay; the most gigantic of Dandelions, a species of *Taraxacum* which we already knew from the Straits of Belle Isle,

the Mingan Islands and Anticosti, with extraordinarily large involucres, apparently an undescribed species (to be described and illustrated in Part III). Here, as on the other taluses we visited, *Primula laurentiana* Fern. and the more delicate *P. mistassinica* abounded, as did the subarctic *Festuca rubra* var. *arenaria* (Osbeck) Fries, *Parnassia parviflora*, and other less significant species. We wanted to search further, for we had collected only from a stranded bit of turfy carpet, and the talus and cliffs of Cutwater Head cover a vast area; but a gentle, though authoritative, "We haven't got anywhere yet" brought us back to the motor boat.

The western slope of Penguin Head looked so interesting that we spent a full hour there; then, rounding the point, we landed on a very different slope, merely the eastern dome of the same Head. Finally, after a few minutes on Druid's or Raglan Head and alluring glimpses up Penguin Arm and Goose Arm, with their unvisited limestone walls, we turned back, regretting the "Sagona" and the obligation to catch her. At ten o'clock Mr. Wheeler further tantalized us by stopping under the big cliffs at Cod Cove. It was twilight but we could see the big-headed *Taraxacum* again, though it was too dark to tackle the slippery wall. With this diverting background, we "boiled the kettle" and our day's botanizing was over: acres of "Limestone Polypody," *Thelypteris Robertiana*; *Kobresia simpliciuscula* (Wahlenb.) Mackenz., as fine as we had ever seen; *Carex rupestris* All., not previously known from the Bay; the arctic *Potentilla nivea* L. and *Dryas integrifolia* Vahl; *Rhododendron lapponicum* (see comment on p. 10); *Solidago multiradiata* Ait., the most northern of American goldenrods; one of the new brown-headed species of *Antennaria* (PLATE 265) of Hannah's Head and another (PLATE 268), very beautiful, with 1 or 2 white heads, a plant we had never before seen in Newfoundland; and the Newfoundland phase of *Arnica chionopappa* Fern. which Rydberg has dignified with the name *A. Fernaldii*.

At the opening of the week we had keenly regretted the necessity of waiting at much-botanized Bay of Islands; now we almost resented our promise to our hosts at Old Port au Choix to arrive on the next trip of the "Sagona." Only a very limited area about the Bay of Islands has really been closely botanized; we could spend a whole season with a center there, and then not exhaust the rich areas. We can't do it all. Most fascinating exploration awaits the right party; but, to do effective work they must be able to climb and they

should not waste time and strength on the "taboo-list" of ubiquitous and insignificant plants!

We reached Old Port au Choix soon after sunrise on July 19th, planning to secure the desired *Salix* and anything else overlooked by Bachelot de Pylaie in 1820 and by Wiegand, when he barely reached Pointe Riche from the south in 1910; then to be taken over to St. John's Island for the *Taraxacum*; and, finally, to catch the "Sagona" three days later on her trip south. On July 28th I wrote Mr. C. A. Weatherby a letter from which I excerpt passages which intimate why we were still at Old Port au Choix.

"Finally, the Sagona sailed on the 17th. On board were Mr. and Mrs. Morris, en route to Flower Cove, thence 48 miles by motor boat to Cook's Harbor to photograph *Habenaria straminea*! They had been waiting *ten* days at a neighboring village without knowing where to botanize; and we were all naturally aggrieved that we hadn't joined company for some of the real botanizing.

"We had selected Old Port au Choix for a short visit partly because the horizontal limestones of northwestern Newfoundland here come to the surface [PLATE 234] along every cove, forming extensive gravel (angular and very sharp)-covered barrens [PLATE 235] for miles around. Looking out our windows we see bare crests in all directions, and on the points (or 'heads') high cliffs with *very* high talus. The village occupies a narrow isthmus (perhaps $\frac{1}{4}$ mile across) [PLATE 235] between St. John Bay at the north and Ingornachoix Bay at the south, so that motor boats can be taken in either direction, without having to go many miles around Pointe Riche. Back of us to the north, with its southern edge 10 miles away, lies the range called The Doctor Hill, and beyond that, to the north, its mate, Bard Harbor Hill, where we got so many fine things four years ago.

"The people of Port au Choix (two miles away) and Old Port au Choix are the most intelligent and modern of any we have been thrown with in the 'outports.' The 'agent' (manager of fishing, etc.) is an interesting man, and our hosts, Stanley Lavers and his wife (*née* Breton) are a splendid pair. Mrs. Lavers had French parents, which is a salvation to our digestions. At most places in Newfoundland we get the horrible English cooking, gone a few degrees worse: boiled potatoes, brassicaceous vegetables (if any) and poor bread and soggy steamed puddings. But here we find a big house, with

three large spare rooms, a fine garden, cream-giving cows, plenty of eggs and poultry; and we live high—salmon, fresh cod, halibut, lobster, rabbit, poultry, cream that stands up in mounds (served on almost everything, including lobster), lettuce, carrots and greens! How can we ever get into training for mountain-climbing? Mrs. Lavers quickly recognized our dislike of grease and she boils, steams, bakes or broils everything; we are so satisfied with our home and our splendid food that we have eliminated some other projected areas and are staying on and on. This, however, is not botanically disadvantageous, for every day we bring in one or more 'n. sp.' or species 'new to Newfoundland.' Our 'laboratory' is the adjacent store of Narcisse Breton, a general store now going out of business, so that there is only a meagre remnant of stock on the shelves and we have only 1-5 purchasers visit us daily! Instead, the shelves are stacked with driers, ventilators, etc., and we put up our specimens on the counters. The visitors come for impossible purchases and then linger to comment on the beauty of our 'flowers' and they gladly give us the local names for the showy ones.

"The weather has been perfect, clear and rainless through the day, with showers in the night; consequently, we have been embarrassed by full presses and the temptation to go daily to a new headland or prairie-like barren, working three or four hours after supper putting things into press. I brought 1000 driers but we need twice as many and have to shift and manipulate to get out enough to put up each day's collecting; and, at that, we prepared a 'taboo-list' of a hundred or more species too generally distributed to collect. *Antennaria* and *Arnica* occupy much of the time. We have, I suppose, fifteen species of *Antennaria* collected in large quantity, at least five of them new species, some very peculiar, and several previously known only from the type locality many miles away. Everywhere we go *Arnica Fernaldii* Rydb. is seen, but always scattered; similarly *A. terrae-novae* [PLATE 270] and another (the handsomest of the group [PLATE 269] with stiffly erect fuzzy leaves [*A. tomentosa* J. M. Macoun]) are scattered all about. But on one side of one peninsula we came across a freely stoloniferous little species (*A. Griscomi* of the Shickshocks), making solid carpets on the turfy slopes and looking like our lawns of dandelions. And speaking of *Taraxacum*, that genus is in full swing, with many very different species.

"We very promptly came upon *Habenaria straminea* all about us—

the deliciously vanilla-scented species Morris has gone so far to photograph! He may be returning south on the 'Sagona' this afternoon or tomorrow morning and I haven't the heart to break the news to him. Nor do I know whether to disconcert his plans by showing him another *Habenaria*. In 1820 Bachelot de la Pylaie spent eight days about Ingornachoix Bay and in his 'Voyage' he spoke of finding *Platanthera bifolia* of Europe. His record has always been discredited; but last Sunday, while Long was at home writing the weekly letters, Fogg and I took a stroll before supper (with our eyes shut, for it was Sunday) and in the heath-barren (*Empetrum*, *Dryas* and *Juniperus*) found a yellowish-flowered *Hab.* with two basal leaves, presumably what De la Pylaie had seen, though not really *H. bifolia*. Subsequently we have collected four other numbers of it and now pass it by—all in dry limestone barren.

"From my place at table I look out on a fine cliff a mile away, but one has to go there to learn that its crest is covered with two tiny arctic *Carices* [PLATE 247] quite new to us; and so it goes. Nineteen years ago Wiegand got a sterile branch of a strange willow at Pointe Riche. It has been recognized by both Schneider and me as a very distinct new species, but the material is wholly inadequate. It was that which really decided us on coming here—over one boat. We now have a beautiful series [PLATE 254], a handsome species nearest *S. lanata* of Lapland and Scotland. . . . I won't try to list all the hundreds of plants of real interest. It is a vast country and we have to omit 99% of it."

Nor in this supplementary account will I enumerate them all nor try to give the daily discoveries with exact chronology. As stated in the letter above quoted, it was impossible to go to a new stretch of open barren or to a new headland without adding to the novelties discovered. *Antennaria*, which we thought we had already well collected, was as thrilling as ever; one plant, abundant hereabouts, forming broad rosettes and having the brown heads with almost gamophyllous involucre (PLATE 264)—enough, except that in everything else it is a perfectly good *Antennaria*, to throw it out of the genus!; another, forming little barrel-shaped or columnar plants (PLATE 263) with an amazing number of cauline leaves; others, old friends, such as the very rare *A. Wiegandii* Fern. which we discovered four years earlier on St. John's Island, or the widest-spread species in Newfoundland, the green-leaved and white-headed *A. spathulata* Fern. But, since the



LIMESTONE BARRENS, OLD PORT AU CHOIX (upper).
LIMESTONE BARREN, ST. JOHN ISLAND (lower).



TERRACES, SOUTHERN SLOPE OF DOCTOR HILL (upper).
UNREMOVED ANGULAR BLOCKS, TABLELAND OF DOCTOR HILL (lower).

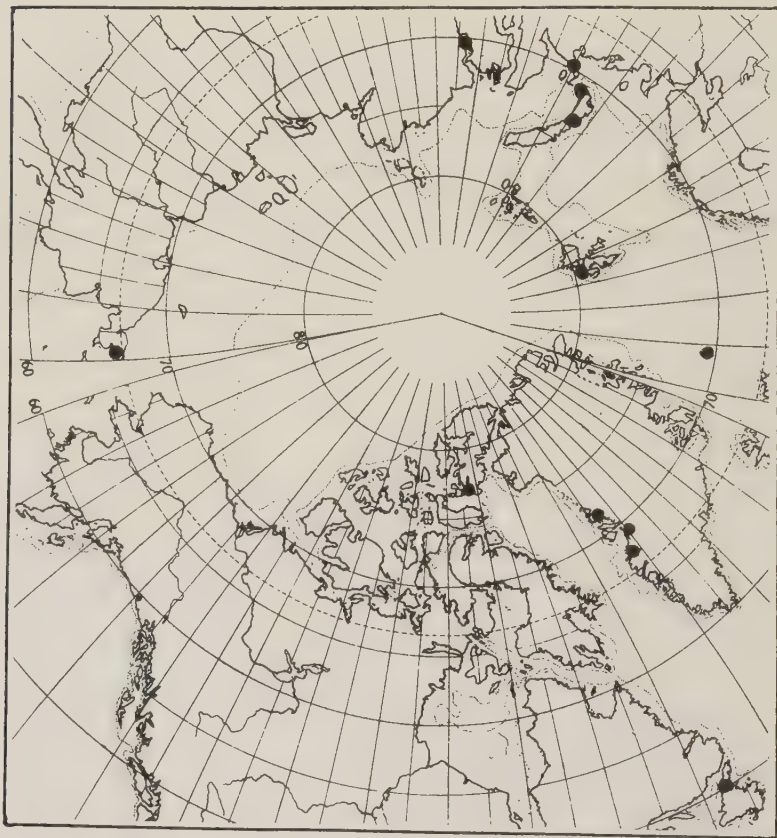
genus *Antennaria* in Newfoundland will be specially treated in Part III, it need not receive further attention here. *Arnica*, too, has been sufficiently discussed for the present. In general, the dry barrens and open slopes were carpeted with a fine assemblage of willows, all of them well known from western Newfoundland (except the new species related to *Salix lanata*), but enough to make a New Englander take notice: *S. reticulata* L., *vestita* Pursh, *Uva-ursi*, *arctophila* Cockrell, *cordifolia* Pursh (in great variety), *calicicola* Fernald & Wiegand and *candida*. In one depression on Pointe Riche *S. pedunculata* Fern., a large shrub with great aments nearly a decimeter long and previously known only from near the Straits of Belle Isle, made an extensive thicket.

On the dry barrens (PLATE 235) it was impossible to predict what would appear next. *Agrostis paludosa* Scribn., here as elsewhere inclined to belie its name, seems to be pretty clearly a variety of *A. borealis* (to be discussed in Part III). *Scirpus rufus*, which we had always considered a strict halophyte, here ran well back into the barrens, where it mingled with *Carex glacialis* Mackenz. and the always puzzling Drabas or with various forms of *Calamagrostis inexpansa* and the baffling forms of *Agropyron*.

In the letter above quoted reference was made to two tiny arctic *Carices*; they grew together on the dry barren back of Gargamelle Cove. One, the tiniest *Carex* I know, except the arctic *C. ursina* Dewey and *C. glacialis*, proves to be the high-arctic *C. incurva* var. *setina* (Christ) Kükenth. (PLATE 246, MAP 4), originally described from arctic Siberia, but now known also from Spitzbergen, Jan Mayen, western Greenland and Ellesmereland. Here, in latitude 51°, it is at sea-level and its interlocking companion is a new species (PLATE 246) which has been elsewhere found only in Greenland (to be discussed and illustrated in Part III).

Comandra Richardsiana was splendidly flowering and the *Lesquerella* of western Newfoundland and Anticosti (PLATE 258), which has been passing as the arctic *L. arctica* (Wormskj.) Wats. or as its var. *Purshii* Wats., was scattered in the dry shingle. Abundant new collections from Newfoundland and beautiful material of *L. arctica* recently received from Dr. Morten Porsild strengthen the conviction that our plant is not *L. arctica*; this matter will be further discussed in Part III. The little Tansy of northwestern Newfoundland, *Tanacetum huronense* var. *terrae-novae* Fern., crept through the

gravel, forming beautiful white plumes of foliage, with great golden buttons of flowers; and the monotony of ubiquitous but always beautiful *Dryas integrifolia* was occasionally broken by patches (mostly sterile) of the white-pubescent var. *canescens* Simmons, described from Ellesmereland but already known on Table Mt. at



Map 4. Range of *CAREX INCURVA*, var. *SETINA*.

Port au Port. In one dry thicket I was pleased to greet *Amelanchier Fernaldii* Wieg., a northern extension of range; and on one strip of gravel on Pointe Riche we came across *Campanula rotundifolia* displaying every conceivable variation from the common linear-

leaved extreme to others with oblong or even narrowly ovate cauline leaves, the latter var. *alaskana* Gray.

So much for some of the plants of dry barrens. Where it was slightly less dry, in humus-carpet or in depressions, *Habenaria straminea* Fern. (PLATE 251) abounded. The other *Habenaria* (PLATE 252), about which I wrote Weatherby, proves to be an extreme variation of the continental *H. Hookeri* of acid peats of woodlands, in northwestern Newfoundland known only in open limestone barrens. Its behavior is quite as reprehensible as that of *H. orbiculata*, discussed on p. 8. Another Newfoundland orchid, *Cypripedium parviflorum* var. *planipetalum* Fern. (PLATE 250), abounded in the peaty spots, very handsome and strikingly unlike the continental plant in its short and broad flat petals.

In a single unusually wet depression (wet enough to have standing water) on Pointe Riche the very rare and most distinct *Drosera linearis* made almost continuous turf. In Newfoundland we had previously known it only on the serpentine or magnesian limestone of Blomidon. In such places, also, *Carex bicolor* All. and *C. microglochin* Wahlenb. abound; and it is here that we look for *Epilobium davuricum* Fisch. and *Juncus albescens* (Lange) Fern. (PLATE 249). The latter species takes the place in northern North America of the European *J. triglumis* L., but, since the distinctions have only recently been pointed out (RHODORA, xxvi. 202), it is desirable to illustrate them.

The visit to Bard Harbor Hill and to Doctor Hill in 1925 had yielded so many good things that we wanted to get back to the mountains, especially to try the southern and eastern portion of Doctor Hill. So, with Mr. John Lavers as guide and aided by Mr. Allan Ofrey, we left the latter's place at Eddy's Cove on St. John Bay (Old Man's Cove of the charts) on the morning of July 30th and packed in to the southern slope of Doctor Hill, which on this side presents wonderfully accentuated terraces (PLATE 236) in the hard quartzite rock. Camp was established near timber-line on Deep Gulch and in the afternoon the first botanizing began. Deep Gulch, like the gulches on the northwest side of Doctor Hill and on Bard Harbor Hill, explored in 1925, has precipitous walls of thoroughly rotted rock and so does the next gulch to the west, the head of Yellow Brook. It was positively dangerous to climb far out on these walls, for great blocks would suddenly break out and go bounding down the ravine, to start others and, perhaps, an avalanche. Botanically Deep Gulch and Yellow

Brook were very similar to Deer Pond Gulch and Northwest Gulch on Bard Harbor Hill. Thickets of *Vaccinium ovalifolium* Sm. in young fruit and of *V. nubigenum* Fern. (PLATE 260) in young flower covered many dry banks. The difference in flowering season is striking. Repeatedly in the Shickshock Mountains and on the Doctor Hills we have found the same situation: in many years of field-experience with *V. ovalifolium* I have never been early enough to see flowers, but *V. nubigenum* lingers and flowers by the snow-banks into August. *Poa laxa* hung in fringe-like lines from the crevices of the rock, particularly on one precipitous wall which we could never approach without stirring the solicitousness of an eagle which, fearful for the nest, circled continuously above us until we got into another fork of the gulch. *Viola palustris* was just flowering, as was *Epilobium lactiflorum* Hausskn., both very local in Newfoundland. The crimson-flowered *Streptopus oreopolus* Fern., abounded; and many places by the brookside, especially at the head of Yellow Brook, were bordered by as fine clumps of *Athyrium alpestre* as those on Deer Pond Brook and in the Northwest Gulch. The Newfoundland plant is, apparently, much nearer to the typical Eurasian plant than to the two varieties in continental America.¹ The gravels and rocks in the brook as it descended the terraces were beautifully carpeted with *Epilobium Hornemannii*, *Alchemilla vulgaris* var. *vestita* (Buser) Fern. & Wieg. and var. *flicaulis* (Buser) Fern. & Wieg., the blue-flowered *Veronica humifusa*, and other species delightful to see but already well known from the Doctor Hills. On broad flats along the brook, with *Angelica laurentiana* Fern.,² *Epilobium angustifolium* had extraordinarily broad leaves (elliptic and 4-6 cm. broad), the Alaskan var. *macrophyllum* (Hausskn.) Fern.,³ heretofore known in the East only from the Magdalen Islands. About the heads of the gulches, where the heathy turf hung over from the terraces and the upper tableland, *Salix herbacea*, *Phyllodoce caerulea* and *Carex stylosa* C. A. Meyer, all rather localized species in Newfoundland, occur.

The open tableland (PLATE 236) itself was a disappointment, too dry for any but the most extreme xerophytes of any bleak and arid silicious summit. In a few places, where a damp sphagnous carpet occurred, the plants were the most ordinary of species of any wet peaty lowland in New England or even the Southeastern States. It

¹ RHODORA, xxx. 48, tt. 165, 166 (1928).

² RHODORA, xxviii. 222 (1926).

³ RHODORA, xx. 4 (1918).

was not thrilling to collect *Osmunda cinnamomea*, *O. Claytoniana* and *Carex canescens*. We badgered Mr. Lavers to produce an alpine lake or at least a bog, but the best he could do was a slight depression in the midst of the dry lichen-crusts blocks of rock. Here were two variations of the lowland *Carex vesicaria*: var. *jejuna* Fern.; and another (PLATE 248), undescribed, with very long and broad purple scales. *C. lenticularis*, *C. brunnescens* and other uninteresting species were here, and one very striking sedge. This formed great hassocks or "nigger-heads," much like those of *Carex stricta*, standing as vertical columns a foot or more high and consisting of ropy interwoven dead roots (much suggesting a small tree-fern). The two inches at the summit were a thin and dense turf (living on the dead waste of its own past years) of short leaves and miniature culms (up to 4 cm. high), with purple spikes often only 2 mm. long, but sometimes up to 1 cm. or more. This looked like "something"; but the best I can do is to make it out a starved and overcrowded state of the most variable and least interesting of mountain *Carices*, *C. concolor* R. Br. (*C. rigida* Good., not Schrank). Somehow this meagre and uninteresting sedge seemed to epitomize the botanical status of the southern tableland of the Doctor Hills, a poor place when contrasted with Bard Harbor Hill and the calcareous northwest slope of Doctor Hill at John Kanes's Ladder.¹

The boggy barrens ("barrns") and swales between Deep Gulch and Eddy's Cove had looked interesting, so, on the way out, we lingered at some of them. *Thelypteris cristata* (*Aspidium cristatum*) abounded in one of the swales, a real extension north; and the rather rare *Ranunculus Macounii* was abundant in swampy woods. *Epilobium nesophilum* Fern.,² a species of the region about the Gulf of St. Lawrence, abounded; and in one limy bog, where *Juncus stygius* var. *americanus* and *Parnassia parviflora* were abundant, we were amazed to find quantities of *Parnassia caroliniana*, quite new to Newfoundland.

The woods near the settlement at Eddy's Cove are terribly overrun by cattle, and almost none of the unspoiled forest-carpet remains. While Stanley Lavers and his father were packing the motor boat for the return to Old Port au Choix, Long, never through botanizing until the boat is leaving, crept on hands-and-knees among the ruined

¹ RHODORA, xxviii. 125, 126, t. 155 (1926).

² RHODORA, xxvii. 32 (1925).

and pastured knolls; and, when "all aboard" was shouted, he came half-beaming, half-reluctant, to the shore. For he held *Calypso bulbosa*, one of the rarer Newfoundland orchids, which the cattle had not wholly exterminated; and with it *Listera borealis* Morong, the northern cordilleran species which Marie-Victorin had been finding in the sea-shore spruce thickets of Anticosti and the Mingan Islands.

Long had but one individual of *Listera borealis* and he wanted another, for the agreement was that the first set of specimens should come to the Gray Herbarium! So, on August 5th we tried again. Some years ago Wiegand, Bartram and I were anxious to get upon our labels for the East Coast the localities, Lush's Bight and Mosquito Bight, to say nothing of Come-by-Chance and Seldom-go-by; so, our party of 1929 having got into training by the mountain-trip, we now yearned to see our names on a label opposite the locality, Bustard Head. But, alas! no one seemed to have heard of the place and when we showed them our maps and charts they merely said, "Oh! Back Cove." Geographic nomenclature in Newfoundland follows neither the rule of strict priority nor established usage. The Highlands of St. John of all charts are now The Doctor Hills; Allan Ofrey lives at Eddy's Cove, but by the charts it is Old Man's Cove; the old Poverty Cove on the Straits is now Sandy Cove; the names of half the localities on our labels of 1910 are now obsolete, and in a few years our present labels may have become unintelligible!

Starting out on a real search for *Listera borealis*, we first landed on two islands at the entrance to Old Port au Choix, Savage's Island and Grassy Island. Both islands had the lushest of vegetation, but mostly the maritime species expected; and both were largely dominated by the gigantic *Angelica laurentiana* Fern., which grew in our doorway on the mainland, but here made dense thickets. And both had the most beautiful *Carex incurva* Lightf. which could be imagined, great lawn-like slopes of it 2 dm. deep, with globose-ovoid heads more than a centimeter thick. *Arabis alpina* L. was dominant on Grassy Island and the beautiful sky-blue *Gentiana nescophila* Holm¹ occurred sparingly on Savage's; and nesting terns were greatly disturbed by our presence. We wanted to go on and examine the other islands in St. John Bay (it had been so rough or we had been so busy that we had not crossed to St. John's Island for the *Taraxacum*); but we had

¹ Holm, Ott. Nat. xv. 111, 180, t. 13, fig. 6 (1901).

started for Back (or Bustard) Cove and for Eddy's (or Old Man's) Cove for the *Listera*.

Fogg and I were landed at the former place and were to follow the shore for four miles to Allan Ofrey's; Long went on to renew the search at the original spot. Fogg and I had a beautiful day, but with no very important discoveries: *Parnassia caroliniana* again and, of course, fine colonies on the turfey shores of *Malaxis brachypoda* (Gray) Fern.,¹ the little American orchid which has been mistaken for the European *M. monophyllos* (L.) Sw. *M. brachypoda* is probably more abundant in the limy region of northwestern Newfoundland than anywhere else; and, since doubt of its specific distinctness has been raised, it seems desirable to show the contrasts photographically (as PLATE 253).

Reaching Allan Ofrey's little house (a tiny house with a large family) in the late afternoon we were met by Long. We all had the same sad report: no *Listera borealis*. He and the cows before him had got it all; but we optimistically feel that another year (especially in July, instead of in August) it will be found in quantity. Accepting the cordial invitation of Allan and Mrs. Ofrey to have tea with them, we hailed the waiting boat crew and all hands crowded into the little kitchen and enjoyed such a delicious feast of lobster, lettuce, cream and hot biscuit as we shall never forget; but, while eating the rich cream, we could not help mourning that we were not getting *Listera borealis* and *Calypso* in undigested form. Then we went out to the canning shed, where we were given an explanation of up-to-date lobster canning, with all its carefully inspected details of disinfection. Then nothing would do but that we must have our pockets filled with cans of freshly put-up lobster!

The hearty cordiality and unspoiled enthusiasm of the Newfoundland fisherman, once the ice is broken and the restraint of diffidence removed, is proverbial. On this trip, as on a previous one, we had heard much of the great botanical promise of the distant Rubbly Hills. So, when we asked Allan if, some year after the lobster season is past, he could guide us to the Rubbly Hills and to give us an idea of the expense, we were gratified and not at all surprised by the answer: "Shure, I'll go wid yez. D'ere's nuttin' I loves so much as trabbelin' ober de country, and I always likes to go wid fonny folks. I've got me motor boat; dat don't cost nuttin'. I've got plenty of lobster

¹ RHODORA, xxviii. 176 (1926).

and rabbit; dey don't cost nuttin'. We may have to borrow a dory; dat don't cost nuttin.' Den w'en we comes out you might give me a little somet'n if you feels like it." It has been a real grief that, as yet, we haven't been able to carry through so promising a trip to the Rubbly Hills.

There was plenty more to do; but we felt that, in the interest of fair play, we ought to leave something for others to discover, and that, in the interest of science, it would be well to see wholly new territory.

No answers had come to my inquiries for appropriate headquarters at Trout River and at Fox Island River (coming off the Lewis Hills), and on the "Sagona" Constable Bussey and Mr. Jenkins (one of the political pillars of the West Coast) had sorely tempted us by telling of the fine home and kindly hospitality of Mr. W. A. Preble at Woody Point in Bonne Bay. Bonne Bay had been visited by Wiegand in 1910 but only slightly explored, since his companion at that time became ill and Wiegand was forced to work alone. At two different times former students of mine had spent periods there, but, with no previous knowledge of the flora, they had inevitably been unable to discriminate between the interesting and the uninteresting, and they, naturally, did not know how to tell the really promising spots. From various trips on the steamer into the Bay, ranked as the most picturesque inlet south of northern Labrador, we felt that there must be good and quite novel botanizing there. That was what we were after.

So, early in the evening of August 7th, limp and dejected after a very pitchy voyage, we landed at Woody Point. The Preble mansion, outstanding for its architectural superiority and its beautiful garden with rows of fruiting strawberries and raspberries, was a landmark; and we promptly invited ourselves to be the guests of Mr. and Mrs. Preble. The genial and kindly owner did not see the matter from our viewpoint, however: the daughters had gone to Boston whence their grandfather, the late Dr. Preble, had originally come to Bonne Bay as surgeon for a Yankee fishing concern, and Mrs. Preble had no household help; all the travellers stopped at Mrs. Crocker's. Mr. and Mrs. Crocker together peeped out at us through the crack of a slightly opened door and explained that they never take boarders; besides, Mrs. Crocker had a hard cold and must not take on extra work. It was necessary to play a trump card; so I asked if she had seen a doctor and suggested that some of the medicines in our outfit

might help her. The effect was instantaneous: "Come right in. The right man in the right place!" Thus we found a home at Bonne Bay and soon monopolized Mr. Crocker's carpenter-shop and workbenches as our own.

Like the Bay of Islands, Bonne Bay has three main Arms and, like the names of localities on the Bay of Islands, the names on the charts and maps have little or no reflection in local usage. Woody Point (PLATE 237)¹ lies under the sombre, green, eastern slope of Lookout Mountain, at the southern entrance to what the charts call the "South Arm," but by the inhabitants known as "West Arm"; the finest botanizing is on the limestone cliffs which shut in the south side of "Main Arm" (called on the charts "East Arm"); while to the northwest of Main Arm there extends a slender branch of the antler-like Bay, locally, and to us inexplicably, known as "East Arm," but on the charts called "Deer Arm."²

(To be continued)

PYLAIELLA FULVESCENS (SCHOUSB.) BORNET.—I beg leave to report the presence on our coast of a peculiar form of *Pylaiella*. In essential respects it compares closely with the descriptions and figures of the species named above as given in De Toni's *Sylloge Algarum*, vol. III., p. 536 and in F. Börgesen's *Marine Algae of the Danish West Indies* Vol. II., pp. 431-433 and figs. 408 and 409.

I may mention the following distinctive characteristics: (a) the cells often contain peculiar stellate protoplasmic masses, similar to those in *Zygnema*, with the nucleus in or near the center; (b) several short, rhizoidal branches, about 11-16 μ thick, arise from many of the vegetative cells which are 30-35 μ broad; (c) most of the unilocular

¹ For the use of the picture, showing The Tableland covered in June with snow, I am indebted to SAMUEL D. GRANT, Esq. of Trinity and Blanc Sablon.

² I could not help recalling my first encounter with Newfoundland geographic usages. Alfred Kidder (the archaeologist) and I were about to start from Birchy Cove (now called Curling) on a canoe-trip, with Harry MacWhirter as guide, across the Island, by way of the East Branch of the Humber. Harry's directions, as I now remember them (the lapse of a quarter-century may have obscured the names), were: "Ship the canoe and heavy stuff on the freight; bill it to MacGreggor and tell the conductor to put it off at Sandy Lake. Then, next day, we will go on the express. Buy tickets to Howley and ask the conductor to let us off at Goose Ponds." We were properly mystified but followed directions, though, next day, when the train stopped at a lonely platform, marked "Avateer," and we alighted beside our camp-equipment and canoe, our understanding had become further perplexed. The whole situation was promptly cleared by Harry's explanation: "Why, you see it is this way: this place belonged to Pratt in St. John's and then he sold it to Baggs Brothers!"

sporangia are thick-walled and binate, because they are divided by a longitudinal septum. All the above structures except (c) are peculiar to *P. fulvescens* and are never found in our indigenous species. Nor is it altogether strange that this form should be abiding in our waters. Two small specimens have been found in the waters of the Virgin Islands; it is at home along the coasts of Spain, Southern France and the Canary Islands; and also along Morocco, where it received its first notice before the middle of the 19th century.

The single specimen to which this note refers, was found growing on *Fucus*, along an exposed shore at North Brooklin, Maine, on August 20th, 1932 and has been deposited in the National Herbarium.

Collins and Hervey in their *Algae of Bermuda*, p. 68, report a single collection on rocks from St. David's in May, 1913, by Hervey. This was distributed in the *Phycotheca Boreali-Americana* as No., 2076. But so far as I can learn, only the three small specimens listed above have ever been found in the waters of the United States.

It would seem that this may be a species in process of evolution. The stellate protoplasmic bodies and the binate sporangia are not universal. Only the Rhizoclonium-like appendages appear as a constant character, and even these are not always abundant. In the California specimens of *P. littoralis*, our common species, are found occasional forms with longitudinal septa (see the publications of Setchell and Gardner). And in the latter part of this summer, I collected on woodwork in this harbor, specimens of *P. littoralis* which showed this peculiar characteristic. I may be pardoned for adding that this is the first recorded instance of this abnormality in the waters of either Europe or Eastern North America. —R. E. SCHUN, Brooklin, Maine.

CALAMAGROSTIS EPIGEJOS, var. GEORGICA IN AMERICA.—In 1928 I published as a new species *Calamagrostis arenicola* RHODORA, xxx. 203. The colony was in a sandy opening in woods at Harwich on Cape Cod "in precarious surroundings, with the railroad to Provincetown bounding one side, a wagon-road bounding another, and two summer cottages casting their shade upon it." Very soon after the publication of *C. arenicola* I received from Mr. Bayard Long material of a closely similar plant which had appeared a few years earlier as a novel and spontaneous colony in woods at Elkins Park in

Montgomery County, Pennsylvania. Very recently Mr. Long has written me: "I can confidently say that it is *weedy* and is a comparatively recent arrival in the woods where it occurs here. I used to know this spot so intimately that it is hard to believe that so conspicuous a grass could have been there then. At one time, some years ago, the dead chestnuts were cleared out and the place more or less cleared up. How much before 1924 it may have arrived one can only conjecture, but *arrive* it did I feel sure. When I last saw it, it had spread considerably."

In August, 1930, Mr. C. A. Weatherby detected on the higher portions of a salt marsh at Gloucester, Massachusetts, another colony of the plant, in a semi-natural, semi-disturbed habitat. Both the Elkins Park and the Gloucester material look exactly like the Harwich plant in having the panicle more slender and stricter and with whiter-brown spikelets with shorter glumes and lemmas than in typical Eurasian and African *Calamagrostis epigejos* (L.) Roth; but the Harwich colony, which I have had under observation for five years, shows every indication of being an introduction, spreading rapidly and in a *weedy* fashion, just as at Elkins Park.

In the Harwich plant the awn is inserted much lower on the lemma than in typical *C. epigejos*, but in the plants from Elkins Park and from Gloucester it is higher up, although in their very whitish and small spikelets and in the slender panicle the three colonies seem identical. In view of the apparent recent arrival and the weedy propensity of the three colonies it seemed important to search again in the Old World material. In the covers of *C. epigejos*, fortunately, I find one sheet from southern Russia which closely matches the problematic American plant and another from southern Moravia which is very close to them in most details. These and the recent arrival in Massachusetts and Pennsylvania seem, without question, to be *C. EPIGEJOS*, var. *GEORGICA* (C. Koch) Ledeb. Fl. Ross. iv. 433 (1853), based on *C. georgica* C. Koch, Linnaea, xxi. 387 (1848), coming originally from "*provinciis caucasicis pr. Tiflis!*" and differing from the greener or bronzy *C. epigejos* in "*panicula pallida, arista paullo infra dorsum medium floris inserta.*" That a plant so localized in Eurasia should suddenly and almost contemporaneously appear in three remote areas of America is itself extraordinary; that it should come from an area whence we have derived few, if any, weeds in the past is equally noteworthy.—M. L. FERNALD.

CYNOGLOSSUM AMABILE IN MASSACHUSETTS.—Although publication of the occurrence of a new weed or a casual garden escape, as one's chief contribution to literature, suggests the ebb tide of botanical activity, such records are desirable, as foreign plants often become an established part of a regional flora.

While exploring the West Chop section of Marthas Vineyard, Massachusetts, in the fall of 1932, the writer noticed a group of rough, blue-flowered plants growing in the low, waste ground of a clearing in the woods. Characteristics of the family *Boraginaceae* were clear, but the plant did not seem to fit the manual description of any native or generally introduced species. A specimen was submitted to Mr. C. A. Weatherby, of the Gray Herbarium, who immediately pronounced it a *Cynoglossum*, later determining it to be *Cynoglossum amabile* Stapf & Hammond, a native of southwestern China.

This Chinese Forget-me-not is well known to florists as a garden plant, but this appears to be the first record as an established escape in North America. Doubtless the garden refuse from a neighboring estate was dumped in the clearing, and this sturdy growth of a dozen or more plants followed.—S. N. F. SANFORD, Boston Society of Natural History.

COLOR VARIATION IN A MISSOURI COLONY OF *HEPATICA ACUTILOBA*.—In those species in which there is a marked variation in the color of the flower, it would be interesting to know if this variation is correlated in any way with the distribution of the species. *Hepatica* is a promising genus for such study since large numbers of individuals often occur together on a single hillside and a color census can be taken very quickly. *Hepatica acutiloba* is found in varying shades of blue and pink as well as white. Like Mr. Weatherby,¹ I have found that a variation in exposure may change the flower color from a bright pink to an almost pure white. I have never, however, found a blue to be changed to a pink or vice versa. In Missouri, *H. acutiloba* is near the south-western limit of its range and large colonies of individuals are seldom met with. Near the "narrows" of the Big River, near Eureka, Missouri, there is however a colony of several hundred plants in one of the deep ravines of that region. On March 14, 1931 a color census was taken of the 74 plants

¹ Weatherby, C. A., *Rhodora* 27: 131-132.

then in flower. No pure white-flowered plants were found. Those which at first seemed to be white were found upon closer examination to have traces of pink in half-opened buds. Notes were taken as to the number of involucral bracts and the number of sepals as well as on the variation in flower color. No variation in bract number was found; all 74 plants had three per flower. Sepal number varied from 6 to 9 and there was no obvious relationship between sepal number and color. There was considerable variation in sepal shape and bract shape, the extremes of which are shown in the accompanying figures.

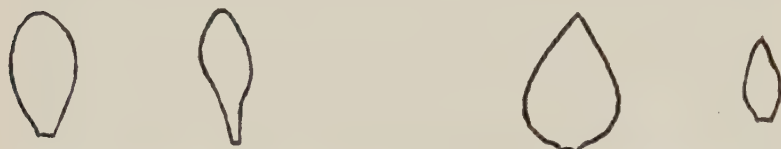


Fig. 1. Extremes in shape of Sepals (left); and of Bracts (right); all $\times 1$.

There were in all 48 pink-flowered plants and 26 blue-flowered ones. Two of the former had a slight tinge of blue and might perhaps have been scored as intermediate in shade. These results are summarized in the accompanying tables.

	white, color showing only in bud	faint color	deep color	total
pink	16	24	8	48
blue	0	13	13	26
	6 sepals	7 sepals	8 sepals	9 sepals
pink	32	14	2	0
blue	21	2	2	1

Taken by themselves, these results are perhaps hardly worth reporting. When compared with counts from other localities or with the results of breeding tests, they may prove to be of more importance. I shall be glad to serve as a clearing house for information collected at other points.

Since the Narrows of the Big River has been repeatedly visited by St. Louis collectors, no herbarium specimens were made. The following collections have been made in the very close vicinity:

Allenton, Mo., April 1887, *Letterman* (MBG); April 10, 1884, *J. H. Kellogg* (MBG); woods on Bat Rock, Jefferson Co., April 2, 1899, *H. Eggert* (MBG).—EDGAR ANDERSON, ARNOLD ARBORETUM.

Panicum dichotomiflorum, var. *puritanorum* IN NEW HAMPSHIRE.—On August 30, 1930, Professor Philip A. Munz and I, with our respective families, picnicked pleasantly on the banks of a small sand-plain pond in the township of Nashua, New Hampshire. Its strand was covered with an abundant vegetation, composed of such pond-shore-loving species as *Cyperus dentatus*, *Eleocharis olivacea*, *Fimbristylis autumnalis* and *Juncus plocarpus*. A representative set was taken for the herbarium of the New England Botanical Club, but, because of various mischances, the specimens lay untouched until last fall (1932). When they were taken out for labelling, there was found among them a grass which, on examination, proves to be *Panicum dichotomiflorum*, var. *puritanorum* Svenson. The material is quite typical, in its short, blunt spikelets matching excellently Dr. Svenson's illustration and his type specimen.

When this variety was described (RHODORA xxii. 154 (1920)), it was known only from Cape Cod, though transitional specimens from the sand-plains of the Connecticut River valley were noted. It has since been reported by J. F. Collins (RHODORA xxx. 231 (1928)) from South Kingstown, Rhode Island, a region in which many species of the coastal plain occur; and in a letter of October 16th, 1930, Dr. A. S. Hitchcock states that he has at Washington specimens from Indiana and from New Jersey which appear to belong to it.

The New Hampshire locality adds an additional state to the range of the variety and one more to the select company of coastal plain plants which are found at isolated outposts in that state.—C. A. WEATHERBY, Gray Herbarium.

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THE TABLELAND AND WOODY POINT, BONNE BAY, IN JUNE
(Photograph by *S. D. Grant*).

DIORITE PINNACLES, WESTERN HEAD, BONNE BAY (lower).



UP THE HUMBER FROM HANNAH'S HEAD (upper);
MARBLE MT. at right. MT. MUSGRAVE in background.
HORIZONTAL LIMESTONES, OLD PORT AU CHOIX (lower).



LIMESTONE BARRENS, OLD PORT AU CHOIX (upper).
LIMESTONE BARREN, ST. JOHN ISLAND (lower).



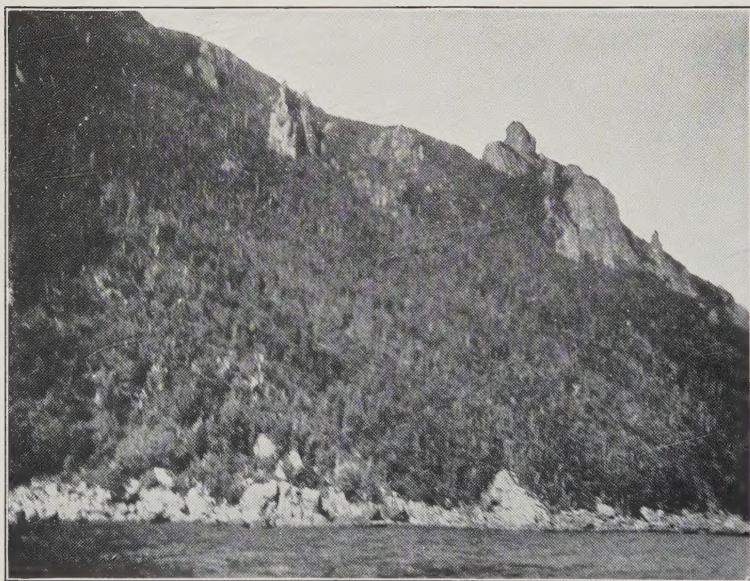
TERRACES, SOUTHERN SLOPE OF DOCTOR HILL (upper).
UNREMOVED ANGULAR BLOCKS, TABLELAND OF DOCTOR HILL (lower).



LIMESTONE BARRENS, OLD PORT AU CHOIX (upper).
LIMESTONE BARREN, ST. JOHN ISLAND (lower).



TERRACES, SOUTHERN SLOPE OF DOCTOR HILL (upper).
UNREMOVED ANGULAR BLOCKS, TABLELAND OF DOCTOR HILL (lower).



THE TABLELAND AND WOODY POINT, BONNE BAY, IN JUNE
(Photograph by *S. D. Grant*).
DIORITE PINNACLES, WESTERN HEAD, BONNE BAY (lower).

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